

NAME:

DATE:

Mastery Assessment of Unit 2 (Practice version 114)

Question 1

Let f represent a function. If $f[32] = 50$, then there exists a knowable solution to the equation below.

$$y = \frac{f\left[\frac{x+41}{2}\right]}{5} - 4$$

Find the solution.

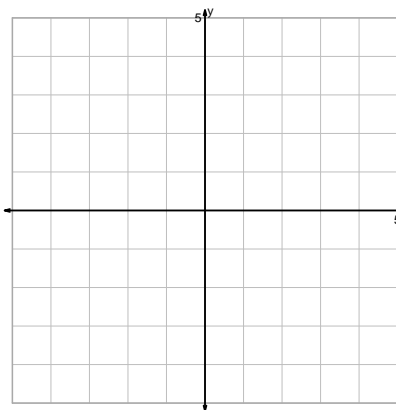
$$x =$$

$$y =$$

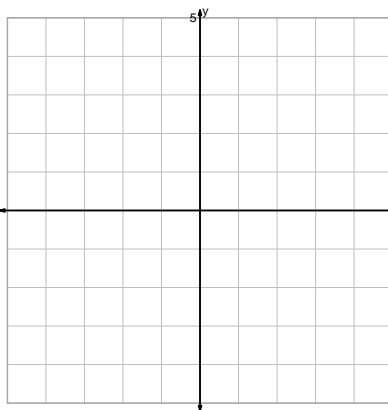
Question 2

Graph the equations accurately. For each integer-integer point on the parent, indicate the corresponding point precisely. Also, with dashed lines, indicate any asymptotes.

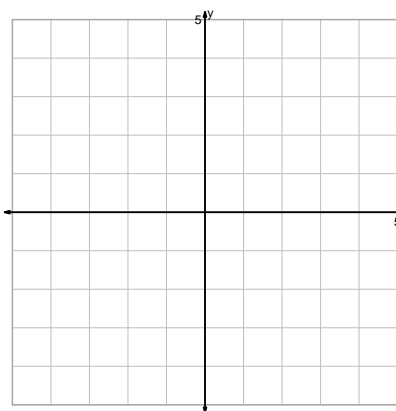
$$y = -\sqrt{x}$$



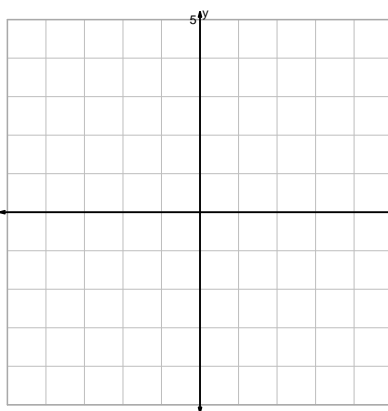
$$y = \sqrt[3]{x+2}$$



$$y = 2 \cdot \sqrt[3]{x}$$

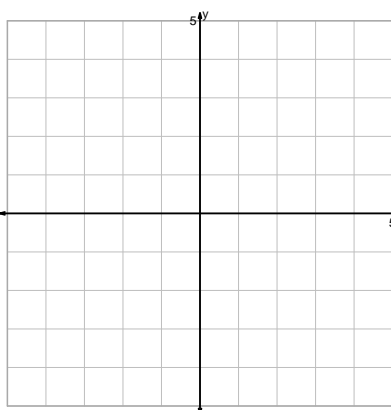


$$y = (2x)^3$$

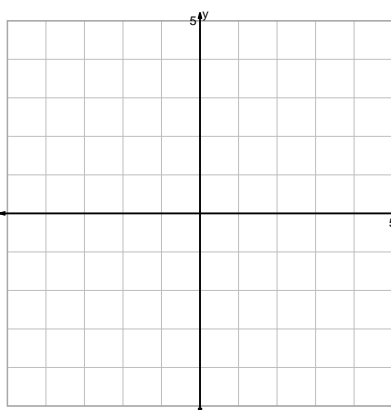


Question 2 continued...

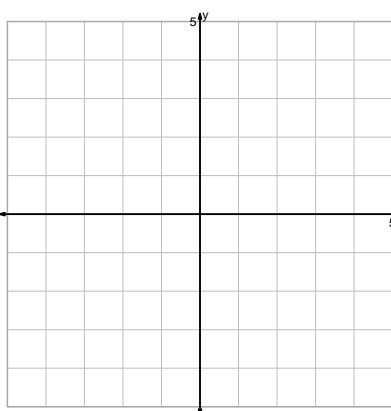
$$y = \log_2(x - 2)$$



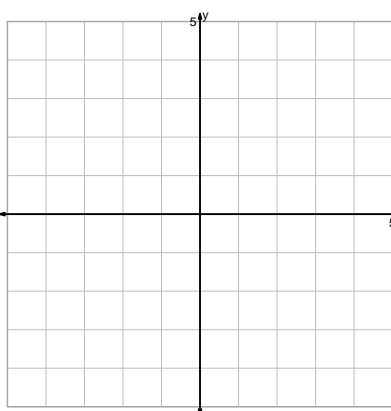
$$y = \frac{x^2}{2}$$



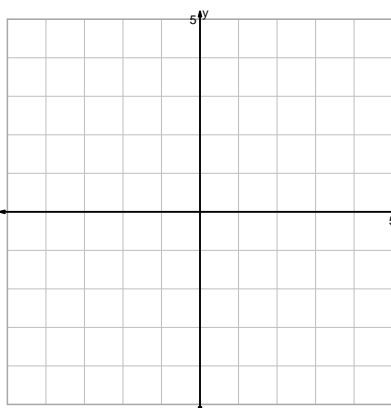
$$y = \log_2(-x)$$



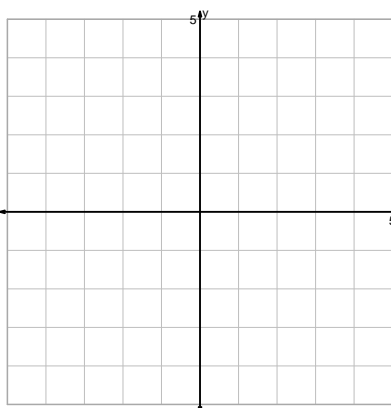
$$y = x^3 - 2$$



$$y = \left(\frac{x}{2}\right)^2$$

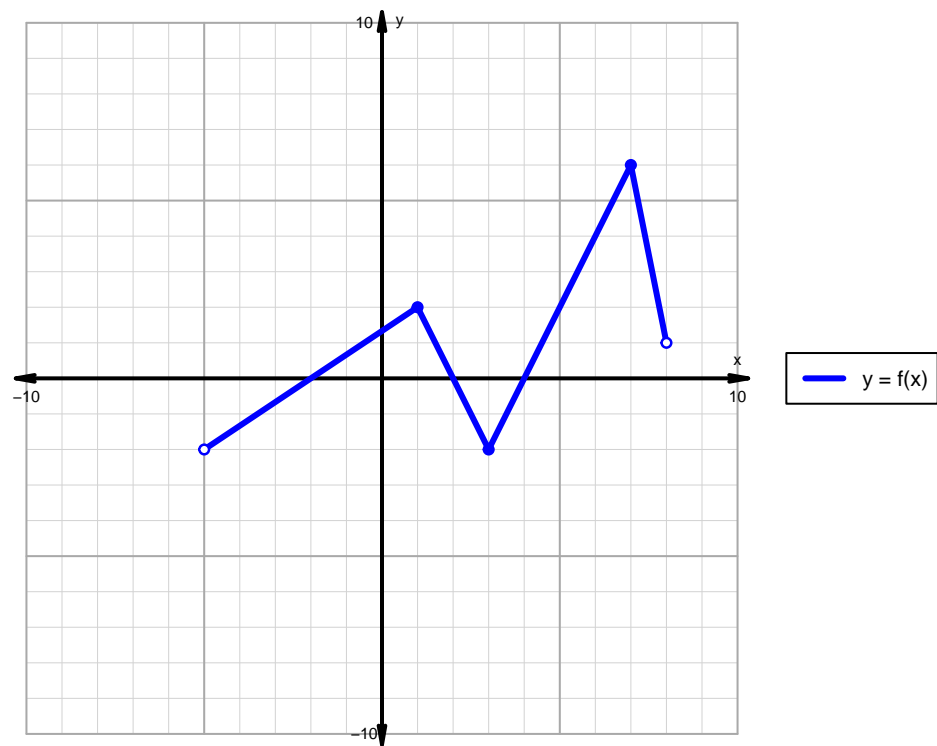


$$y = 2^x + 2$$



Question 3

A function is graphed below.



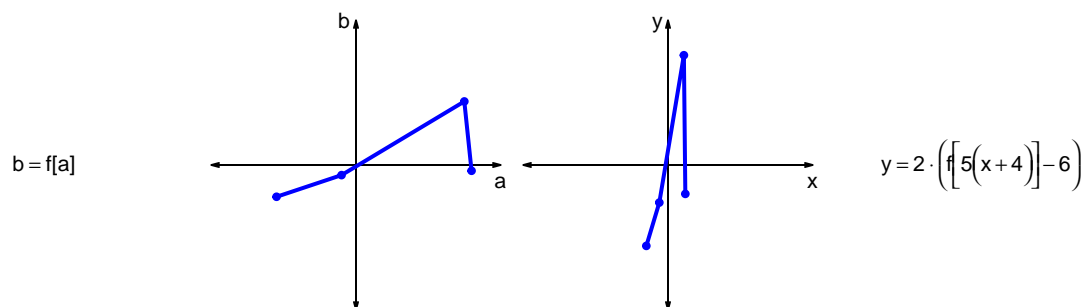
Indicate the following intervals using interval notation.

Feature	Where
Positive	
Negative	
Increasing	
Decreasing	
Domain	
Range	

Question 4

Let f represent a function. The curves $b = f[a]$ and $y = 2 \cdot (f[5(x+4)] - 6)$ are represented below in a table and on graphs.

a	b	x	y
-55	-22	-15	-56
-10	-7	-6	-26
75	44	11	76
80	-4	12	-20



- a. Write formulas for calculating x from a and calculating y from b . (Or, write the coordinate transformation formula.)

- b. What geometric transformations (using words like translation, stretch, and shrink), and in what order, would transform the first curve $y = f[x]$ into the second curve $y = 2 \cdot (f[5(x+4)] - 6)$?

Question 5

A parent square-root function is transformed in the following ways:

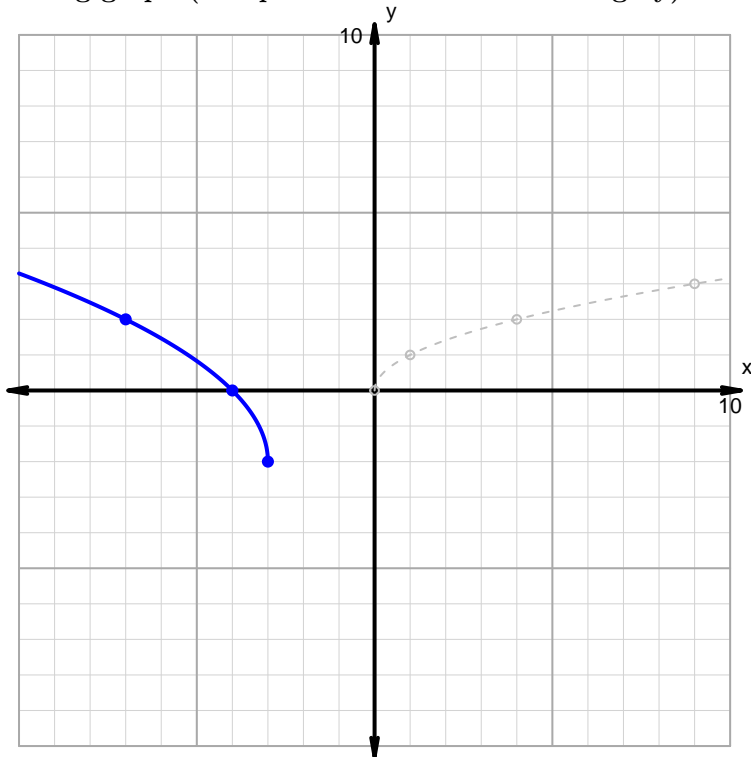
Horizontal transformations

1. Horizontal reflection over y axis.
2. Translate left by distance 3.

Vertical transformations

1. Translate down by distance 1.
2. Vertical stretch by factor 2.

Resulting graph (and parent function in dashed grey):

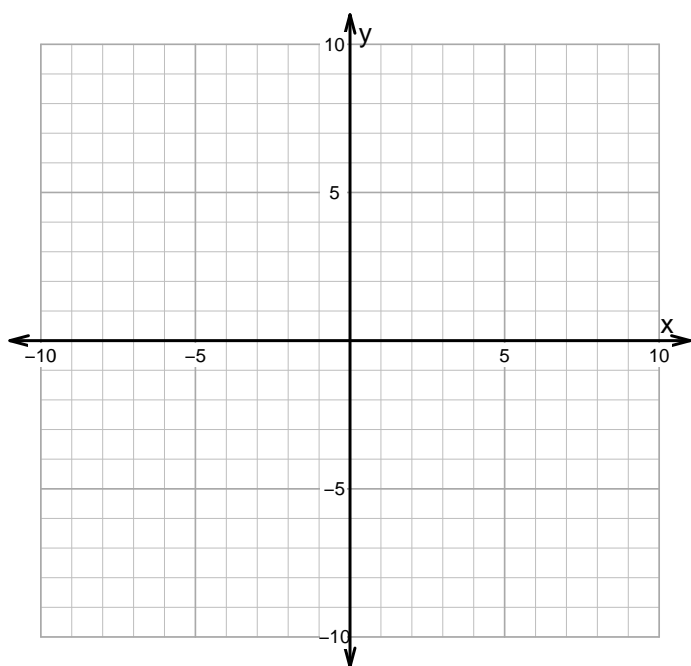


- What is the equation for the curve shown above?

Question 6

Make an accurate graph, and describe locations of features.

$$y = \frac{1}{2} \cdot |x - 1| - 1$$



Feature	Where
Domain	
Range	
Positive	
Negative	
Increasing	
Decreasing	